



Q1 2024 Report on Market Issues and Performance

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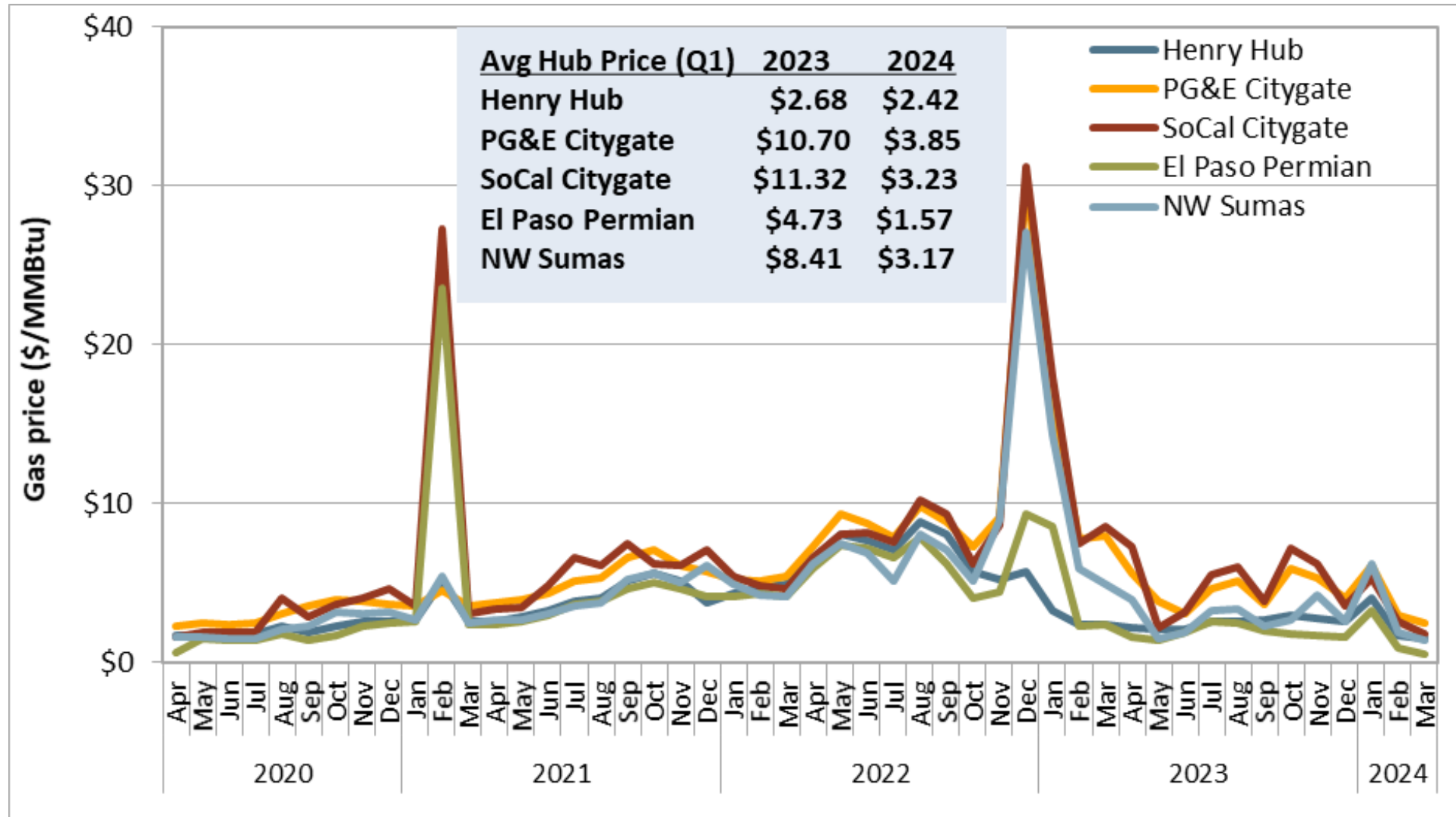
Department of Market Monitoring

October 17, 2024

<https://www.caiso.com/documents/2024-first-quarter-report-on-market-issues-and-performance-oct-11-2024.pdf>

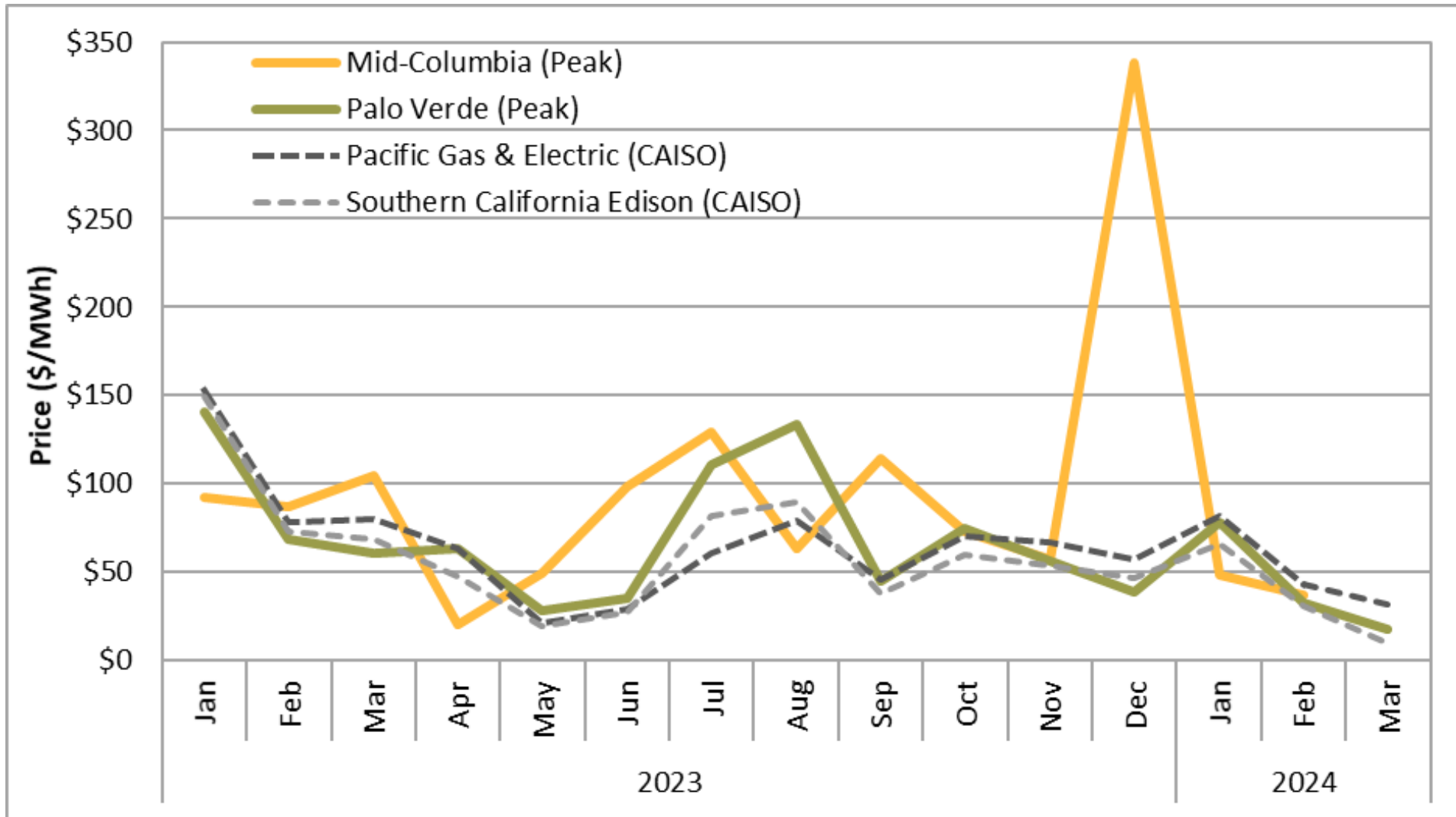
Gas prices down significantly from Q1 2023

Average monthly natural gas prices by hub



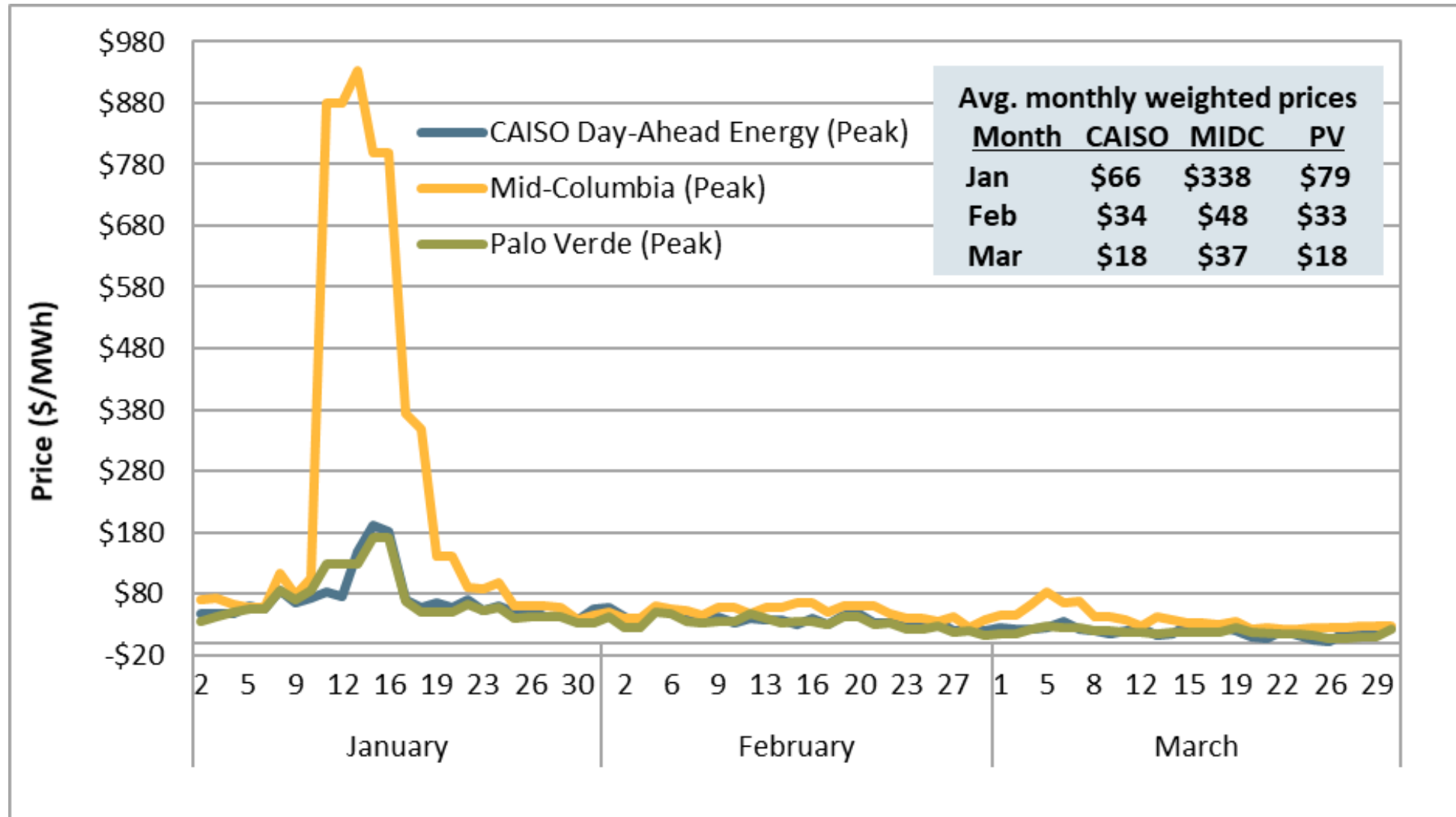
Peak Mid-Columbia prices >> CAISO and Palo Verde in January

Monthly average peak day-ahead CAISO and bilateral market prices



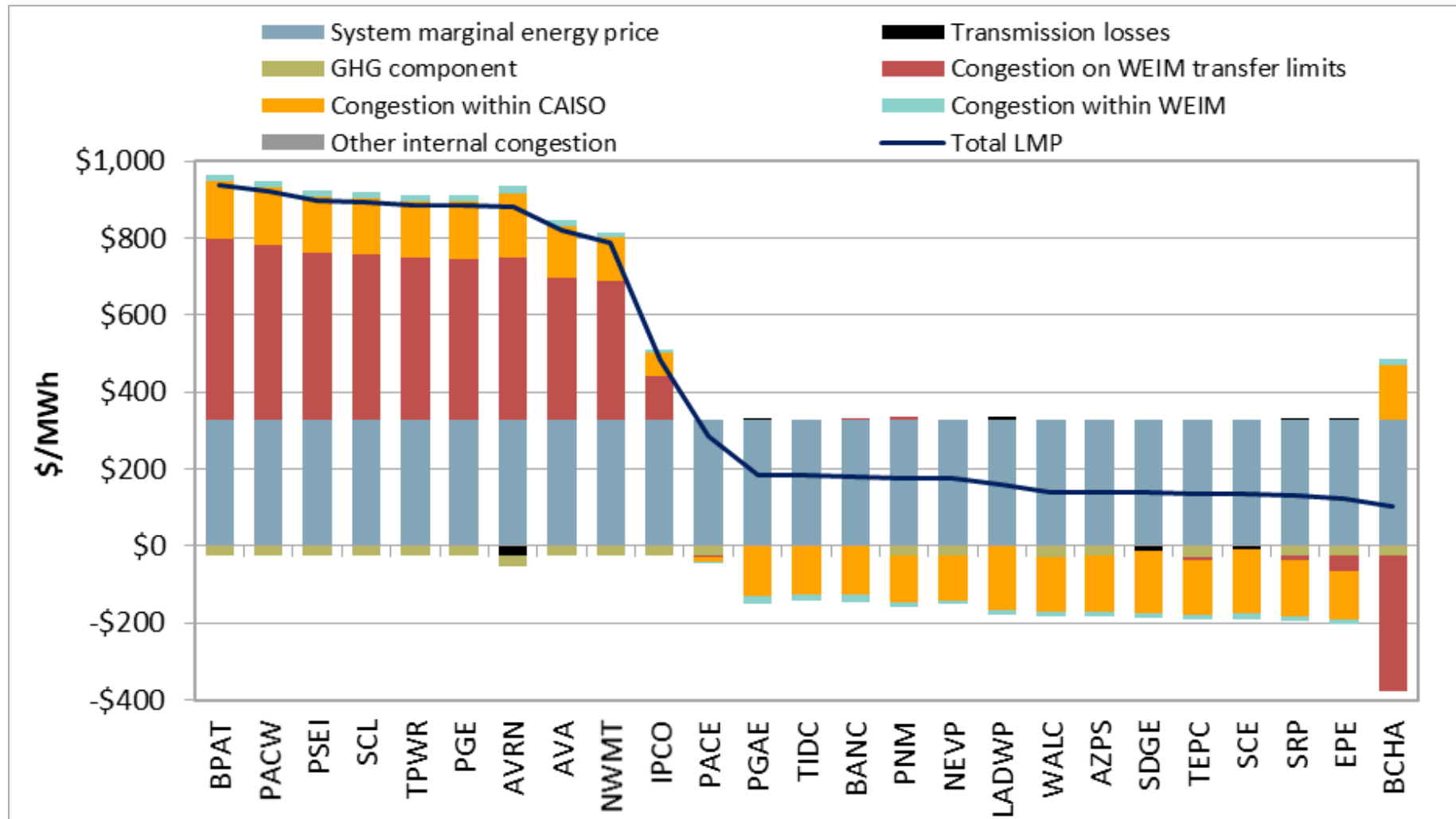
Very high Mid-Columbia prices in mid-January

Day-ahead peak CAISO and bilateral market prices (January - March 2024)



WEIM prices in Northwest separated by WEIM transfer constraints and transmission in CAISO area

Average 15-minute market prices by component (January 13 to January 15, 2024)



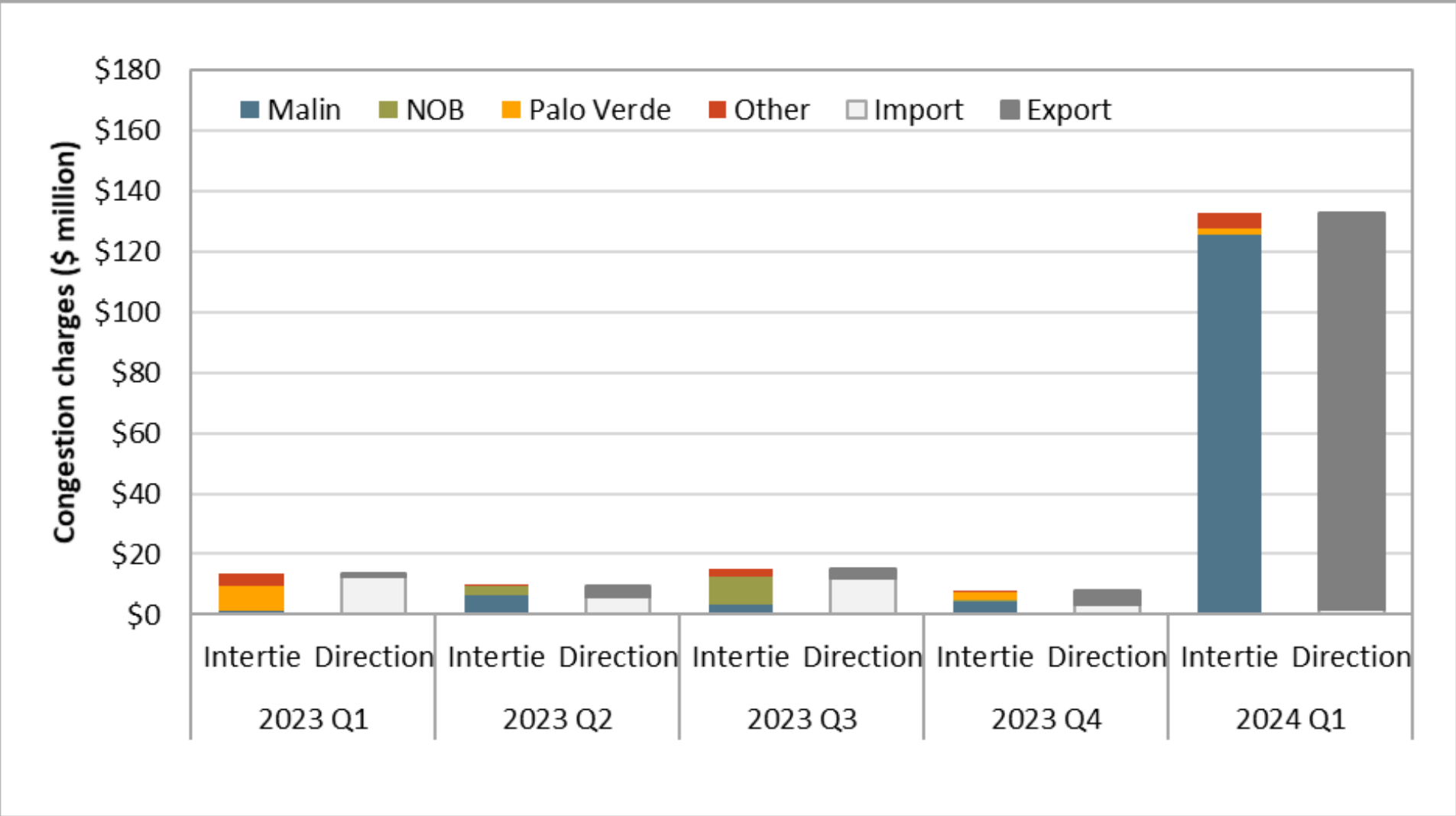
WEIM prices in Q1 2024 < Q1 2023 despite high January Northwest prices

Monthly average 15-minute market prices

	SM EC	\$59	\$57	\$55	\$69	\$97	\$125	\$69	\$90	\$246	\$140	\$73	\$73	\$55	\$19	\$28	\$66	\$67	\$42	\$57	\$58	\$50	\$89	\$38	\$28
	PG&E (CAISO)	\$63	\$68	\$82	\$74	\$103	\$136	\$73	\$95	\$257	\$140	\$75	\$76	\$57	\$18	\$29	\$58	\$65	\$44	\$62	\$62	\$54	\$78	\$40	\$30
	SCE (CAISO)	\$55	\$59	\$69	\$78	\$108	\$136	\$64	\$83	\$246	\$140	\$68	\$65	\$48	\$20	\$27	\$73	\$68	\$39	\$51	\$53	\$45	\$65	\$31	\$17
	BANC	\$65	\$68	\$68	\$72	\$105	\$131	\$75	\$95	\$252	\$142	\$75	\$76	\$59	\$19	\$30	\$56	\$54	\$42	\$59	\$62	\$53	\$77	\$41	\$31
	Turlock ID	\$69	\$76	\$68	\$72	\$100	\$136	\$76	\$95	\$266	\$142	\$76	\$77	\$61	\$19	\$30	\$56	\$54	\$43	\$60	\$63	\$54	\$78	\$41	\$33
	LADWP	\$55	\$57	\$63	\$77	\$108	\$135	\$67	\$87	\$256	\$142	\$73	\$68	\$49	\$20	\$27	\$67	\$50	\$36	\$45	\$52	\$46	\$68	\$32	\$18
	NV Energy	\$49	\$53	\$56	\$69	\$93	\$117	\$58	\$79	\$243	\$131	\$66	\$66	\$50	\$17	\$23	\$59	\$40	\$33	\$38	\$48	\$42	\$65	\$30	\$19
	Arizona PS	\$45	\$52	\$64	\$72	\$97	\$118	\$56	\$80	\$250	\$130	\$66	\$65	\$50	\$17	\$24	\$63	\$41	\$30	\$34	\$45	\$38	\$59	\$28	\$18
	Tucson Electric		\$54	\$64	\$72	\$96	\$111	\$57	\$77	\$222	\$129	\$63	\$60	\$47	\$21	\$26	\$58	\$38	\$30	\$33	\$45	\$39	\$59	\$27	\$15
	Salt River Project	\$47	\$55	\$67	\$67	\$88	\$93	\$56	\$76	\$157	\$119	\$52	\$60	\$50	\$22	\$24	\$62	\$46	\$28	\$34	\$44	\$38	\$54	\$25	\$14
	PSC New Mexico	\$43	\$47	\$49	\$67	\$84	\$103	\$58	\$64	\$114	\$127	\$64	\$65	\$67	\$17	\$24	\$59	\$40	\$30	\$40	\$50	\$40	\$69	\$35	\$18
	WAPA - Desert SW													\$57	\$20	\$24	\$62	\$41	\$30	\$34	\$45	\$40	\$60	\$29	\$14
	El Paso Electric													\$33	\$18	\$23	\$48	\$37	\$29	\$30	\$20	\$20	\$53	\$24	\$15
	PacifiCorp East	\$45	\$43	\$39	\$65	\$81	\$99	\$59	\$72	\$193	\$120	\$63	\$67	\$52	\$18	\$26	\$53	\$38	\$31	\$40	\$46	\$40	\$76	\$31	\$22
	Idaho Power	\$57	\$47	\$32	\$69	\$81	\$92	\$63	\$84	\$237	\$132	\$71	\$73	\$59	\$16	\$27	\$52	\$39	\$33	\$56	\$53	\$45	\$112	\$35	\$27
	NorthWestern	\$57	\$41	\$15	\$41	\$69	\$73	\$64	\$87	\$243	\$133	\$72	\$75	\$61	\$13	\$27	\$53	\$39	\$34	\$62	\$54	\$46	\$151	\$38	\$29
	Avista Utilities	\$57	\$41	\$12	\$36	\$67	\$73	\$65	\$86	\$246	\$133	\$72	\$74	\$64	\$12	\$27	\$49	\$39	\$34	\$63	\$55	\$46	\$155	\$38	\$30
	Avangrid													\$61	\$7	\$28	\$49	\$40	\$37	\$63	\$56	\$48	\$164	\$38	\$31
	BPA		\$46	\$10	\$46	\$80	\$92	\$65	\$86	\$251	\$133	\$73	\$73	\$62	\$5	\$29	\$55	\$49	\$38	\$65	\$57	\$47	\$182	\$39	\$30
	Tacoma Power	\$59	\$44	\$13	\$39	\$74	\$80	\$64	\$85	\$248	\$134	\$72	\$73	\$62	\$6	\$29	\$50	\$43	\$37	\$64	\$55	\$47	\$165	\$39	\$31
	PacifiCorp West	\$59	\$42	\$13	\$42	\$76	\$89	\$64	\$85	\$244	\$132	\$71	\$72	\$61	\$6	\$28	\$48	\$39	\$35	\$64	\$55	\$47	\$170	\$38	\$30
	Portland GE	\$59	\$43	\$15	\$43	\$77	\$92	\$65	\$87	\$244	\$132	\$71	\$72	\$62	\$9	\$29	\$50	\$43	\$37	\$65	\$55	\$47	\$165	\$38	\$32
	Puget Sound Energy	\$59	\$44	\$13	\$40	\$74	\$81	\$64	\$85	\$249	\$133	\$73	\$74	\$62	\$8	\$29	\$59	\$44	\$37	\$69	\$58	\$48	\$167	\$39	\$31
	Seattle City Light	\$60	\$45	\$12	\$40	\$74	\$80	\$64	\$85	\$249	\$133	\$75	\$72	\$61	\$6	\$28	\$50	\$45	\$37	\$64	\$55	\$47	\$167	\$40	\$30
	Powerex	\$52	\$46	\$15	\$37	\$61	\$69	\$67	\$82	\$212	\$129	\$79	\$84	\$79	\$14	\$55	\$94	\$99	\$83	\$102	\$98	\$62	\$72	\$54	\$49
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
		2022									2023									2024					

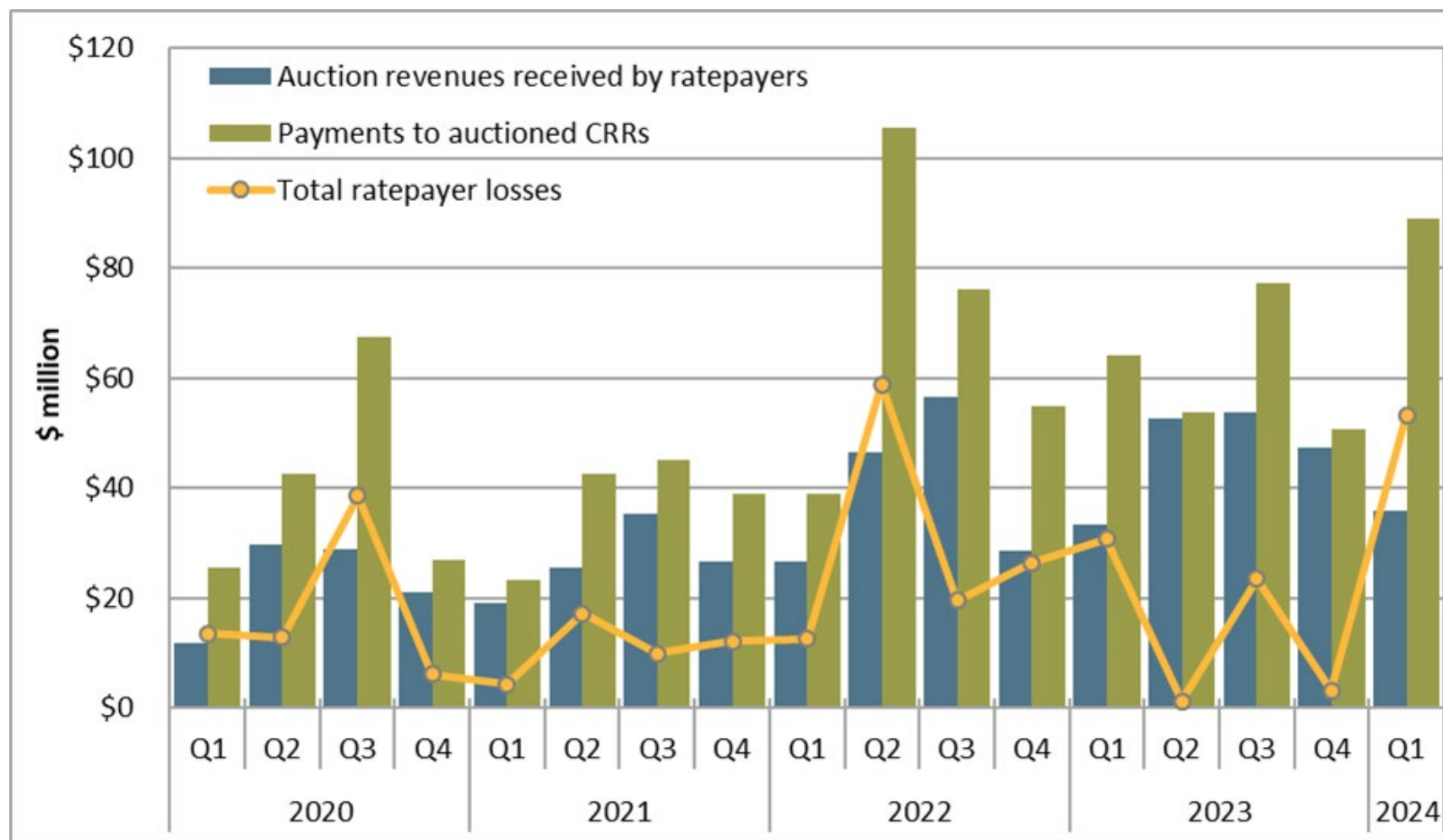
Spike in day-ahead intertie congestion rent in the export direction

Day-ahead congestion rent on major CAISO balancing area interties



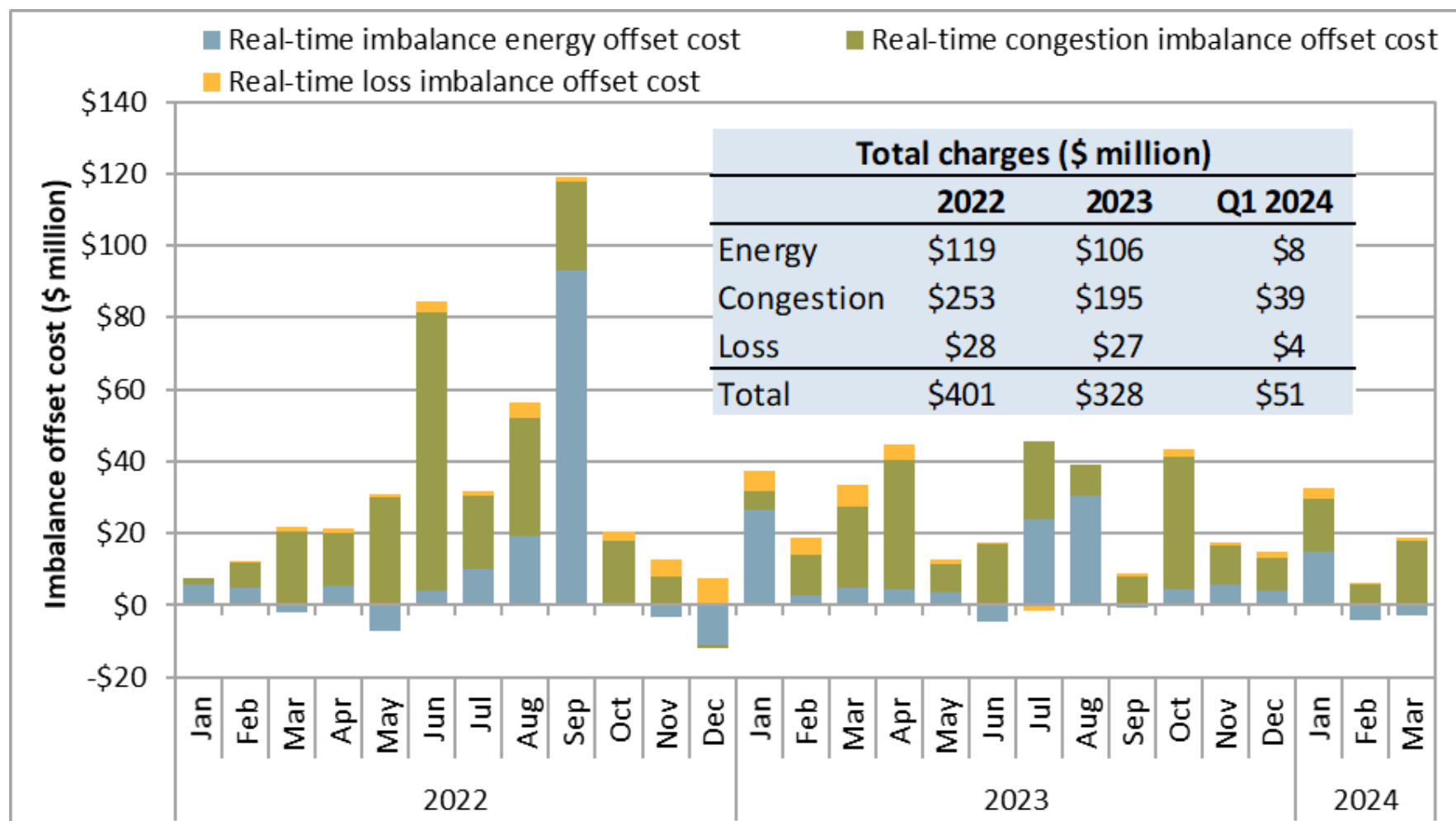
Transmission ratepayers lost about \$53 million from auctioned CRRs in Q1 2024, up from \$30 million in Q1 2023

Auction revenues and payments to non-load serving entities



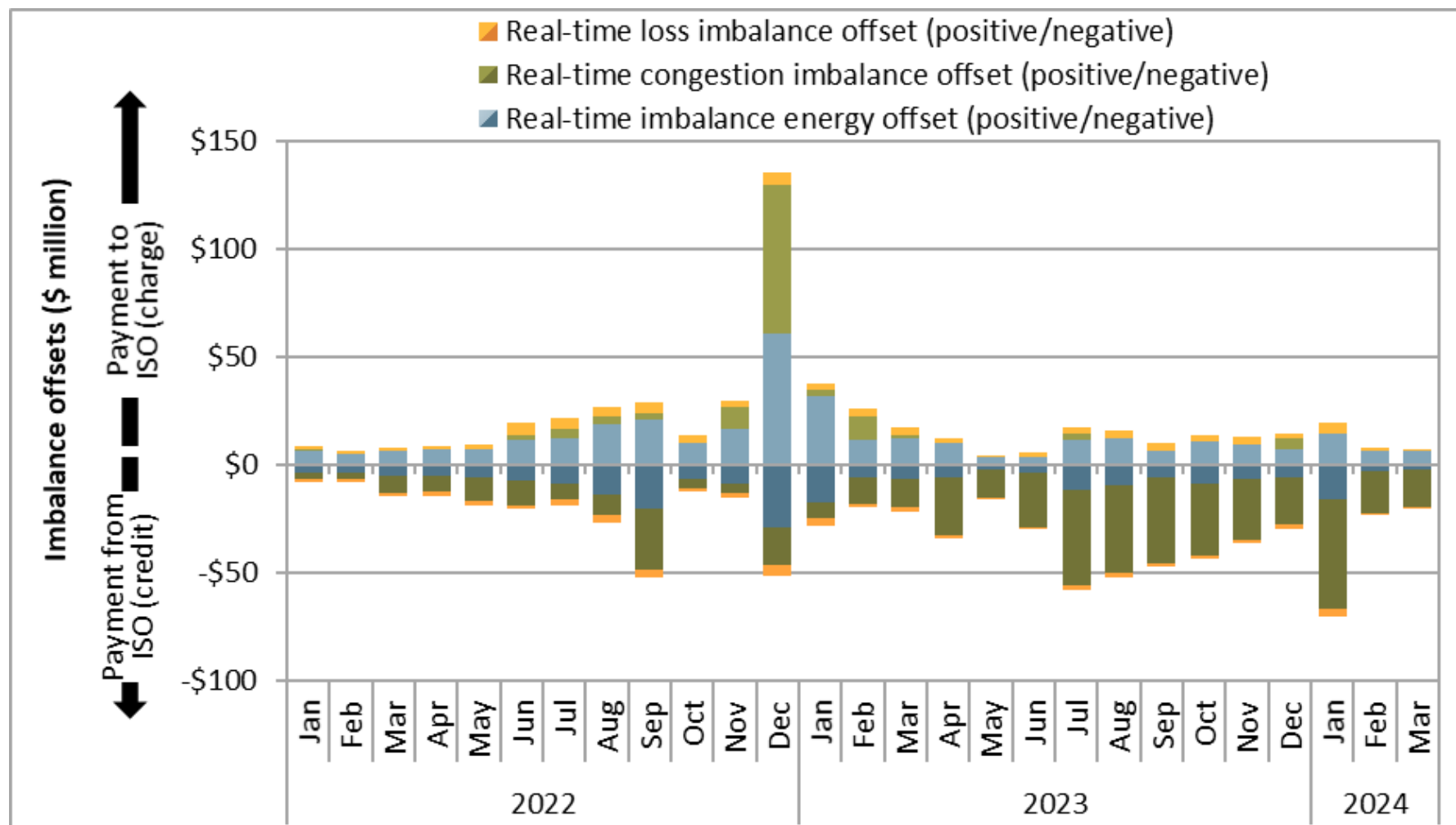
Real-time imbalance offset costs in CAISO area were \$51 million, down from \$90 million in Q1 2023

Monthly California ISO real-time imbalance offset costs



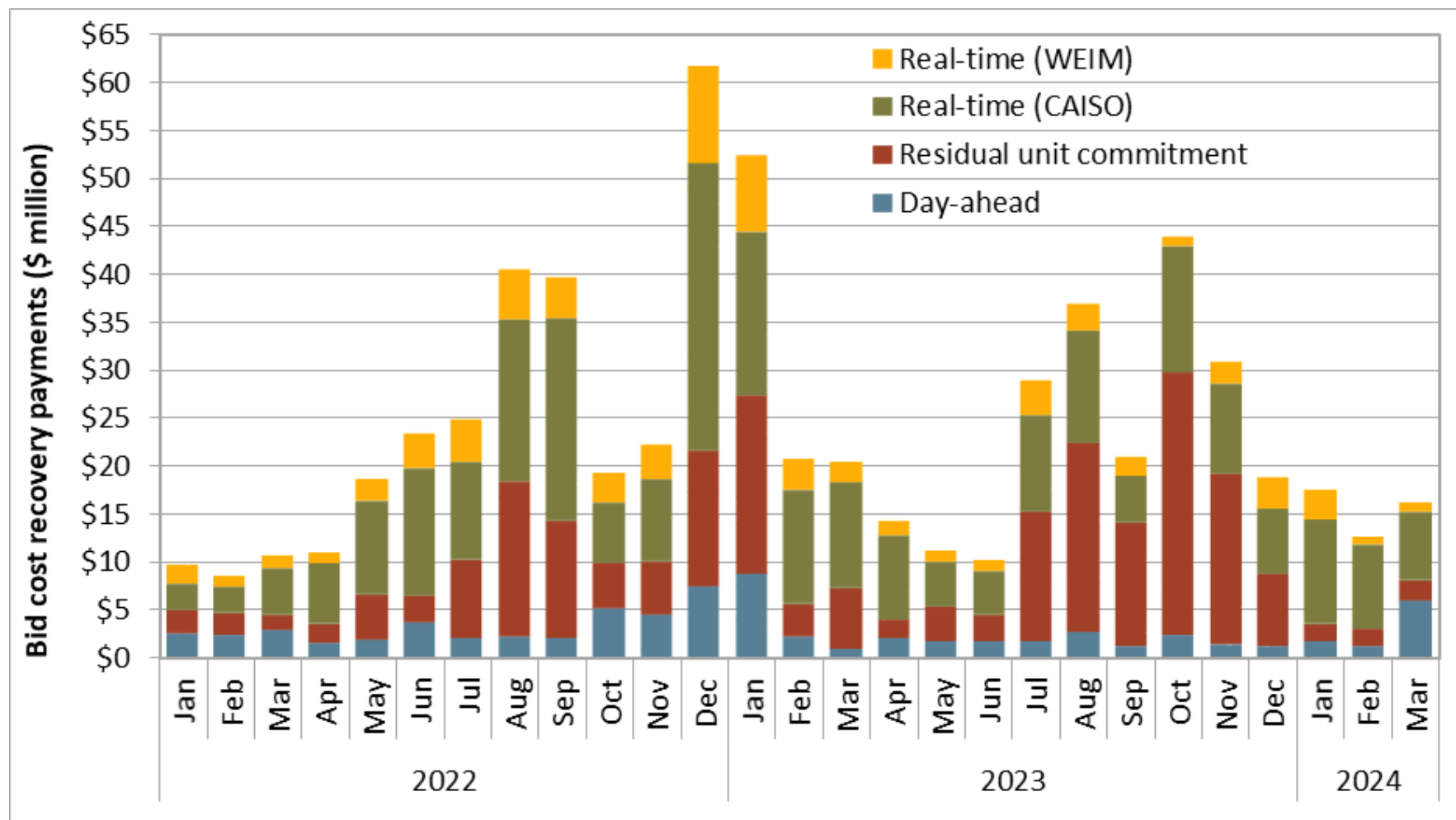
Real-time imbalance offsets in non-CAISO WEIM areas were \$81 million credit to entities, compared to \$10 million charge in Q1 2023

Monthly WEIM real-time imbalance offsets



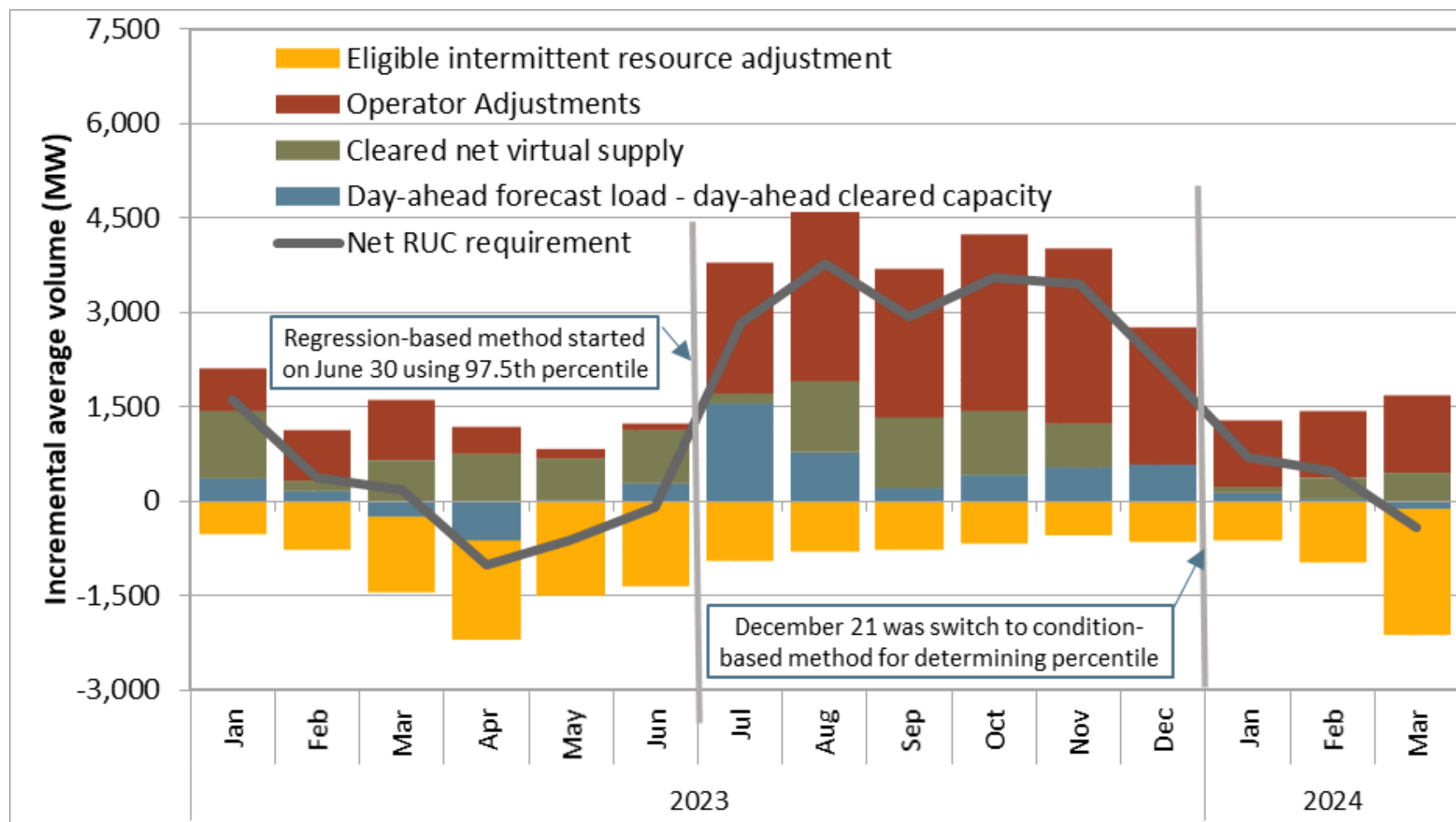
Bid cost recovery payments down significantly in WEIM and CAISO compared to Q1 2023

Monthly bid cost recovery payments



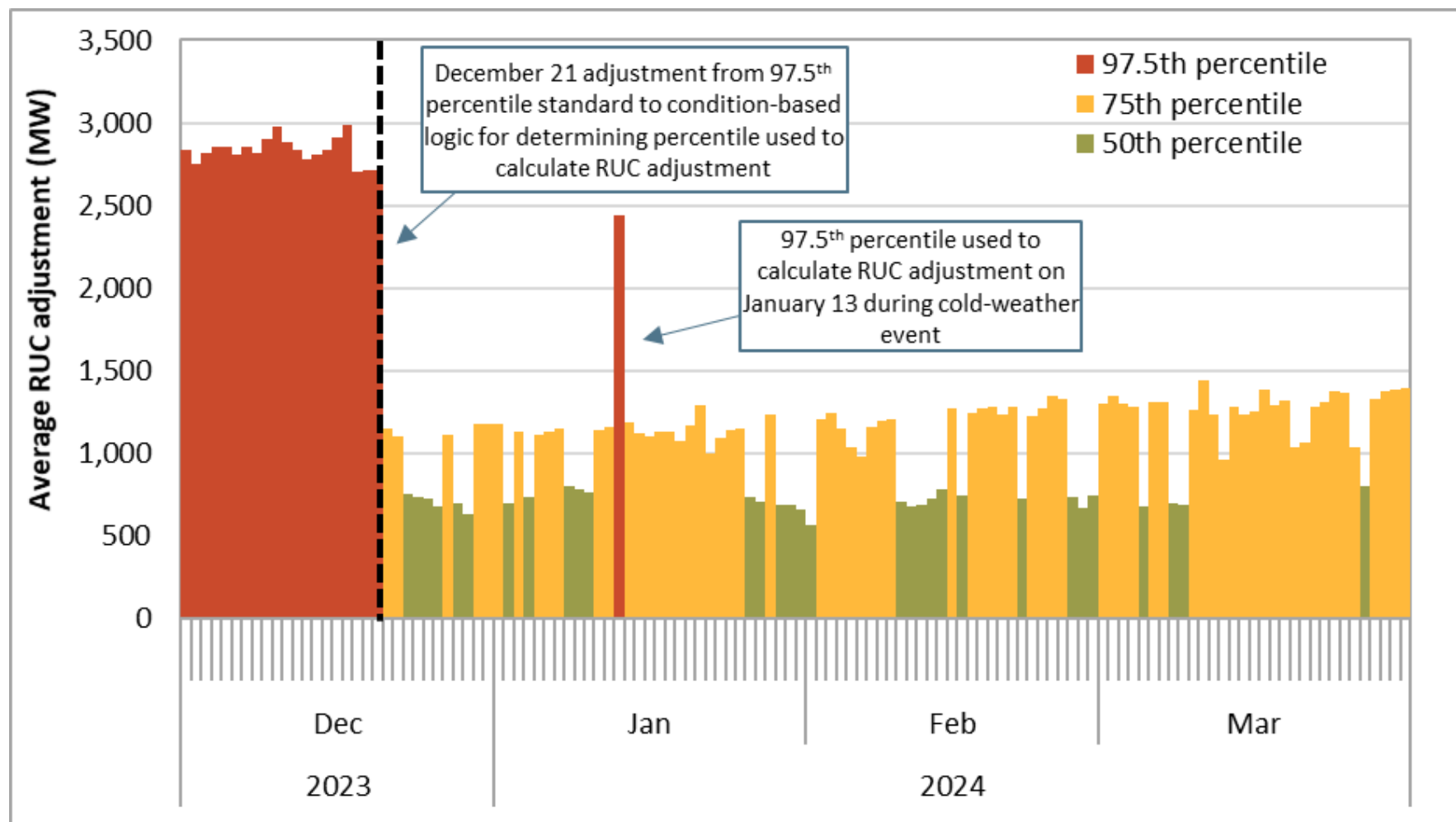
RUC load adjustments increased compared to Q1 2023 but decreased compared to Q4 2023

Determinants of residual unit commitment procurement



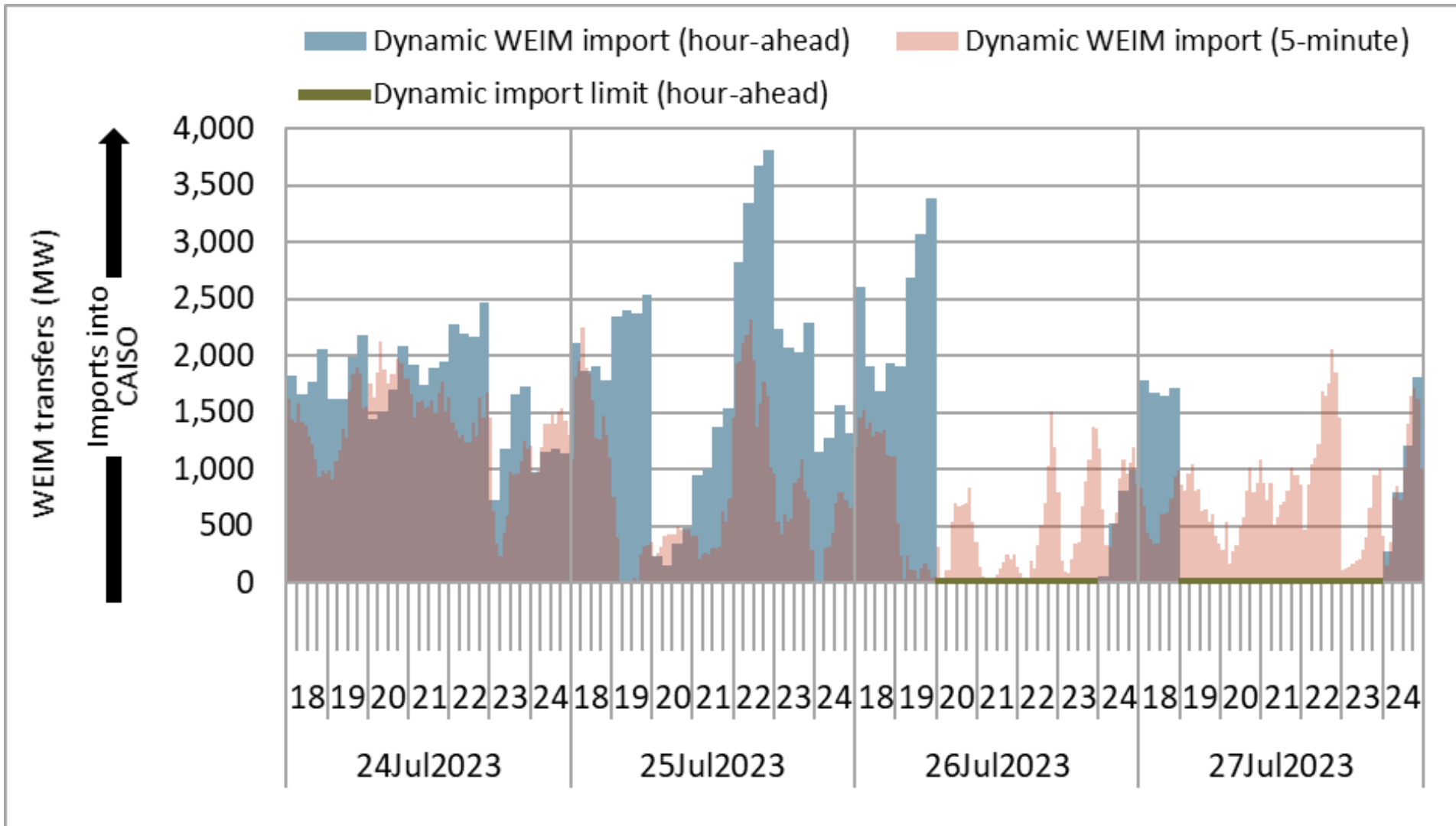
CAISO shifted to condition-based logic for determining percentile used to calculate RUC adjustment on December 21, 2023

Average residual unit commitment adjustment by day (December 1, 2023 to March 31, 2024)



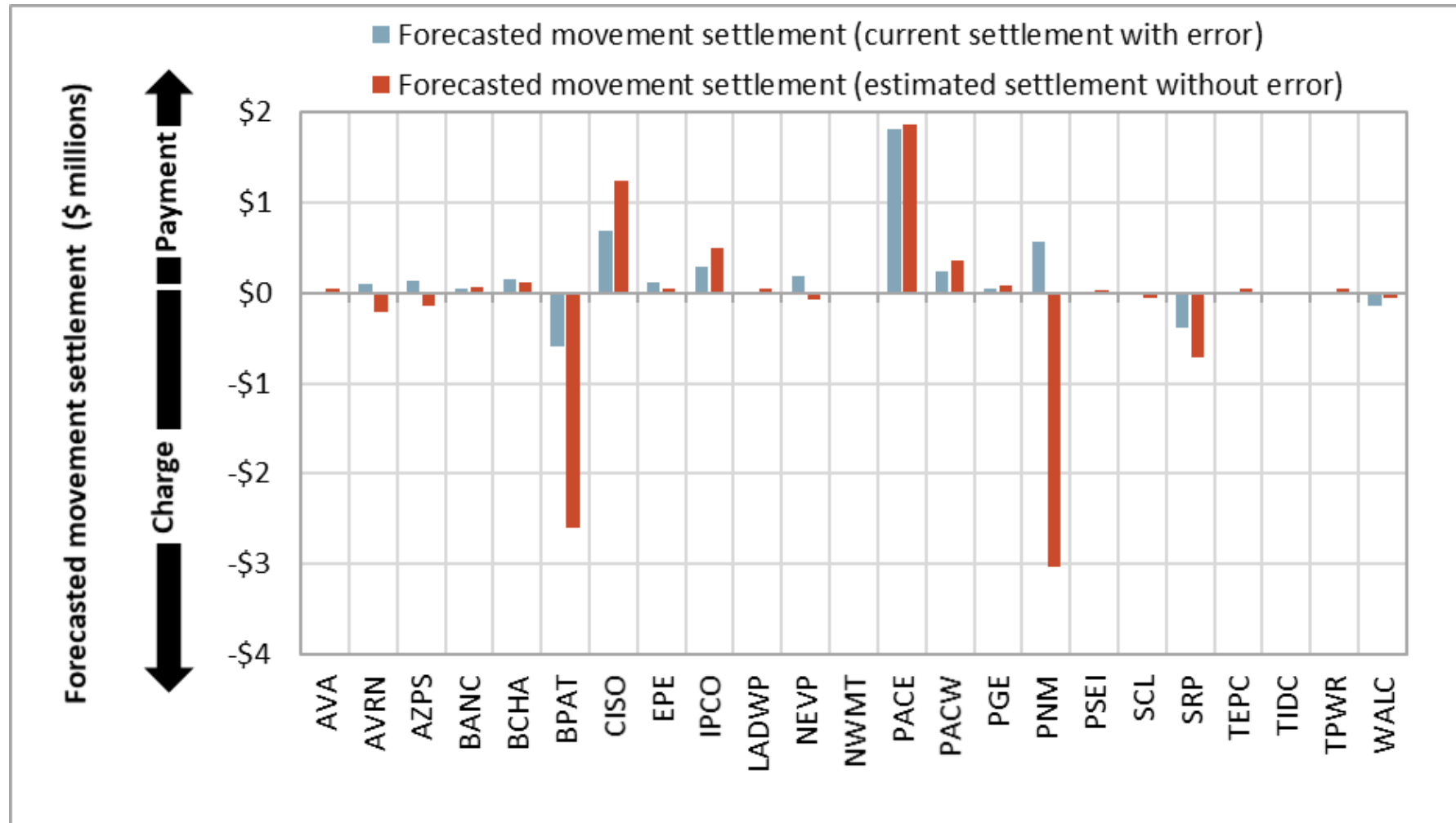
Operators did not limit WEIM transfers into CAISO area in Q1 2024

Hour-ahead and 5-minute market dynamic WEIM transfers into CAISO area (evening hours July 24-27, 2023)



Flexible ramping product forecasted movement settling on wrong interval's FRP price since February 1, 2023

Forecasted movement settlement by balancing area (February 2023 to March 2024)

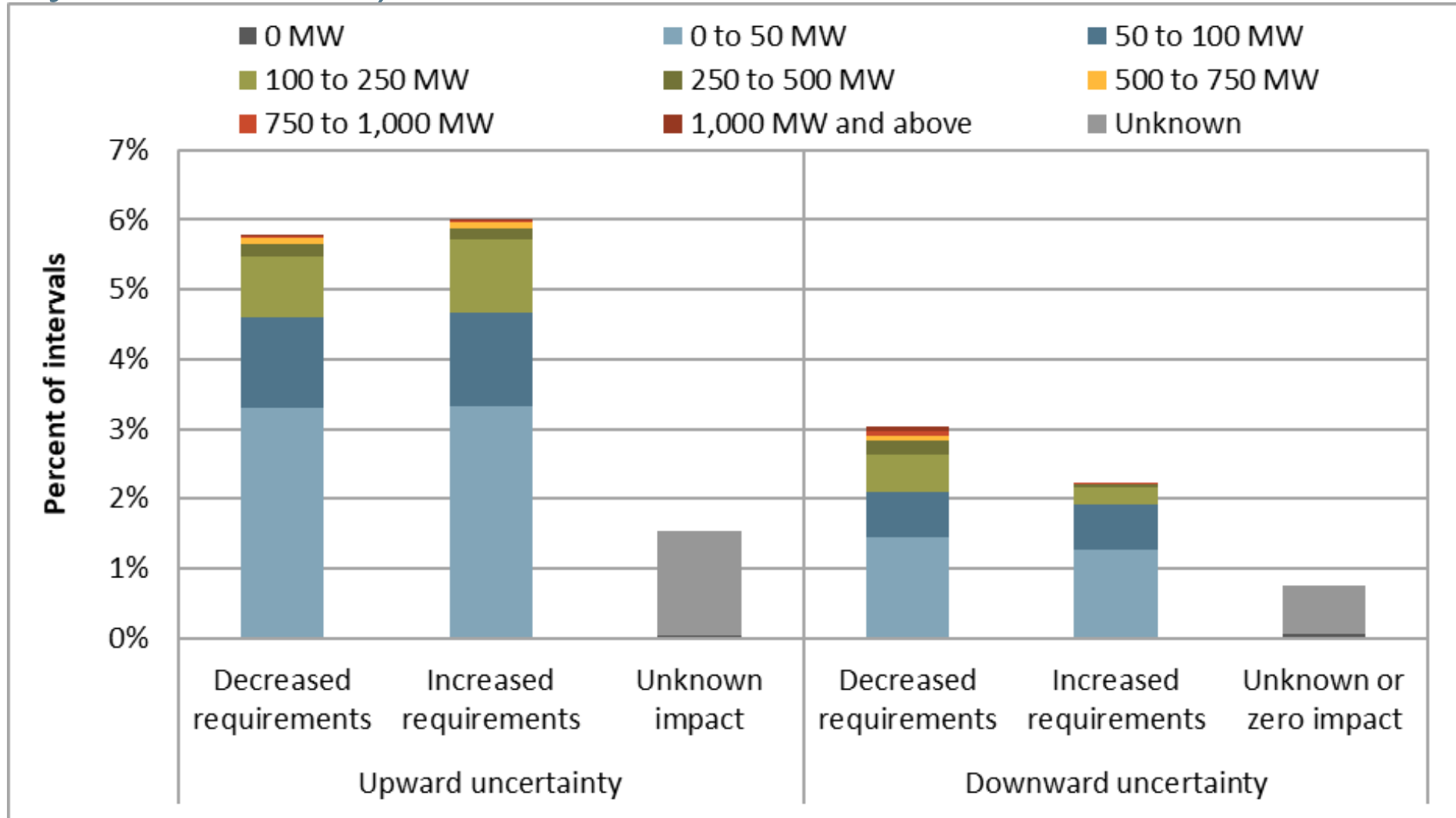


FRP uncertainty requirement: inconsistency between BAs that determine regression parameters and BAs whose forecasts are multiplied by regression parameters to calculate uncertainty requirement

Resource sufficiency evaluation run that determines the BA pass group used in each of the two steps of estimating FRP uncertainty requirement

15-minute market interval	Load and VER forecasts used to calculate regression parameters	Load and VER forecasts multiplied by regression parameters to get uncertainty requirement
1	First run (T-75)	Second run (T-55)
2	Second run (T-55)	Final run (T-40)
3	Final run (T-40)	Final run (T-40)
4	Final run (T-40)	Final run (T-40)

Impact of pass group inconsistency on FRP uncertainty requirements (January-March 2024)



For more information

- Q1 2024 report on market issues and performance
 - <https://www.caiso.com/documents/2024-first-quarter-report-on-market-issues-and-performance-oct-11-2024.pdf>
- Department of Market Monitoring webpage
 - <http://https://www.caiso.com/market-operations/market-monitoring>
- CAISO Tariff, Appendix P
 - http://www.caiso.com/Documents/AppendixP_CAISODepartmentOfMarketMonitoring_asof_Apr1_2017.pdf
- Email questions to:
 - Ryan Kurlinski, rkurlinski@caiso.com
 - DMM, DMM@caiso.com